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(54) CYLINDER WORM, WORM WHEEL, AND WORM GEAR

(57) Abstract:

PROBLEM TO BE SOLVED: To improve durability and efficiency by replacing, at least, a portion toward a tooth end side than a pitch line out of an oblique side line portion of a trapezoidal tooth form with a cycloid curve provided by rolling a rolling circle along the pitch line.

SOLUTION: A portion toward a tooth end side than a pitch line PL out of a linear portion of an oblique side of a conventional trapezoidal tooth form is replaced with a cycloid curve SY1 drawn by a point A2 on a rolling circle R1. Similarly, when a rolling circle R2 in the tooth root side of the pitch line PL is rolled in the direction of presenting no tooth along on the pitch line PL, it is replaced with a cycloid curve SY2 drawn by a point B2 on the rolling circle R2. This constitution can drastically enlarge the relative curvature radius of a worm wheel relative to a worm 12 and drastically reduce the bearing stress as compared with the conventional one so as to engage them in an accustomed state and smoothly slide them. A lubricating oil film is

thus easily formed, abrasion resistance can be improved, heat generation is suppressed by the reduction in energy loss, efficiency is improved, and vibration and noise can be reduced.

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